



10 7 JUL 2008

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

YOUNG & THOMPSON
745 South 23rd Street
Second Floor
Arlington, Virginia 22202

In re Application of: ALVES et al.
U.S. Application No.: **10/586348**
PCT Application No.: PCT/FR2005/000093
International Filing Date: 14 January 2005
Priority Date Claimed: 15 January 2004
Attorney Docket No.: 0508-1167
For: METHOD FOR OVERPRODUCING A SPECIFIC
RECOMBINANT PROTEIN WITH P.CINNABARINUS
MONOKARYOTIC STRAINS

DECISION ON PETITION

This communication is responsive to the "Response to Notification of Defective Response" filed 28 May 2008, which has been treated as a petition under 37 CFR 1.181.

BACKGROUND

On 14 July 2006, applicant submitted national phase papers in the United States Designated/Elected Office (DO/EO/US). The papers provided PCT/FR2005/000093 as the international application number.

On 19 September 2007, the DO/EO/US mailed a *Notification of Corrected Papers under 35 U.S.C. 371 in the United States Designated/Elected Office (DO/EO/US)*, which indicates the following:

- This application clearly fails to comply with the requirements of 37 CFR 1.821-1.825. And requires, *inter alia*, an initial paper copy of the sequence listing.
- A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 CFR 1.821(e).
- Substitute drawings in compliance with 37 CFR 1.84 because drawing figures contain text that is not in English (including, for example, a flow chart that was originally not in English that has been marked up to include the English text) see 37 CFR 1.84(p)(2) and 37 CFR 1.52(d)(1).

On 22 January 2008 applicant filed a response which includes:

- a copy of the sequence listing in computer readable form

- a paper copy of the sequence listing that consists of twenty-six (26) pages containing a list of eighteen (18) sequences (“twenty-six (26) page paper copy”)
- a statement that the attached paper and computer readable copies have the same content, and introduce no new matter into the present application
- an instruction to enter the sequence listing into the application, and
- thirteen (13) sheets of substitute drawings (Figs. 1-12) in compliance with 37 CFR 1.84.

On 25 January 2008, the DO/EO/US mailed a first *Notification of Defective Response*, which indicates the application clearly fails to comply with the requirements of 37 CFR 1.821-1.825 and requires, *inter alia*, an initial paper copy of the sequence listing.

On 25 February 2008, applicant filed a response which alleged that the DO/EO/US had not acknowledged the 22 January 2008 response. In support, applicant provided a complete copy of the 22 January 2008 response and requested that the 22 January 2008 response be considered.

On 28 April 2008, the DO/EO/US mailed a second *Notification of Defective Response*, which indicates the following:

- Applicant’s response was filed 10/17/2006.
- A copy of the “Sequence Listing” in computer readable form has been submitted. However, the content does not comply with 37 CFR 1.822 and/or 1.823, as indicated on the attached copy of the marked-up “Raw Sequence Listing.” Applicant must provide a substitute computer readable form (CRF) copy of the “Sequence Listing” and a statement that the content of the sequence listing information recorded in computer readable form is identical to the written sequence listing and, where applicable, includes no new matter.

On 28 May 2008, applicant filed a response which alleged that the marked-up “Raw Sequence Listing” was not received; however, applicant indicated that the response was prepared after reviewing the marked-up document using the Patent Application Information Retrieval (PAIR) system.

DISCUSSION

Upon investigation, the record reveals that a paper copy of the sequence listing was provided to the DO/EO/US by the International Bureau. In accordance with 37 CFR 1.821(c), the initial submission of the international application contained disclosures of sequences and contained, as a separate part of the disclosure, a paper copy of the sequence listing which consists of twenty-three (23) sheets containing a listing of sixteen sequences ("initial paper copy"). Thus, the requirement that applicant provide an initial paper copy of the sequence listing made in the 19 September 2007 *Notification of Corrected Papers under 35 U.S.C. 371 in the United States Designated/Elected Office (DO/EO/US)* was in error insofar as the initial paper copy of the sequence listing was received from the International Bureau.

The 25 January 2008 *Notification of Defective Response* is hereby VACATED because it was mailed prematurely, i.e., before the validation report for the 22 January 2008 computer readable form was completed.

In accordance with 37 CFR 1.821(e) the initial paper copy of the sequence listing must also be submitted in computer readable form that is in compliance with 37 CFR 1.824. In accordance with 37 CFR 1.821(f) a statement that the paper copy and the computer readable copy are the same must be submitted with the computer readable form. Applicant has not submitted a computer readable form of the initial paper copy of the sequence listing or a statement that the sequence listing information recorded in computer readable form is identical to the initial paper copy of the sequence listing. The computer readable form and statement submitted by applicant on 22 January 2008 are not submitted with regard to the initial paper copy, but instead refer to the twenty-six (26) page paper copy.

For reasons above, the copy of the sequence listing in computer readable form, the twenty-six (26) page paper copy of the sequence listing, and the statement received 22 January 2008 fail to comply with 37 CFR 1.821(e) and are not a proper response to the 19 September 2007 *Notification of Corrected Papers under 35 U.S.C. 371 in the United States Designated/Elected Office (DO/EO/US)*.

As a separate issue, the copy of the sequence listing in computer readable form submitted by applicant on 22 January 2008, when treated as a preliminary amendment, remains deficient because the computer readable form of the 22 January 2008 sequence listing contains errors (see attached 06 February 2008 validation/error report). Should applicant choose to submit a substitute computer readable form of the twenty-six (26) page paper copy of the sequence listing, the substitute computer readable form should be clearly distinguished from the computer readable form of the initial paper copy and the requisite statement should clearly identify the substitute computer readable form and relevant paper copy of the sequence listing.

CONCLUSION

The petition is **GRANTED to the extent** that the DO/EO/US has not previously notified applicant that a computer readable form of the initial paper copy of the sequence listing has not been received and that there is an inconsistency among the initial paper copy of the sequence listing, the computer readable form, and the twenty-six (26) page paper copy of the sequence listing.

Applicant is given **ONE (1) MONTH** from the mail date of this decision to provide a computer readable form of the initial paper copy of the sequence listing and a statement that the sequence listing information recorded in the computer readable form is identical to the initial paper copy of the sequence listing, in accordance with 37 CFR 1.821. Extensions of time may not be obtained under 37 CFR 1.136(a).

Correspondence with respect to this matter should be addressed to Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, with the contents of the letter marked to the attention of the Office of PCT Legal Administration.



Tamara Graysay
PCT Special Program Examiner
Office of PCT Legal Administration
Telephone: (571) 272-6728
Facsimile: (571) 273-0459



Bryan Lin
PCT Legal Examiner
Office of PCT Legal Administration

Attachment: Validation/Error Report (regarding 22 January 2008 CRF), 11 pages

=====

Sequence Listing could not be accepted due to errors.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Anne Corrigan

Timestamp: [year=2008; month=2; day=6; hr=16; min=4; sec=4; ms=286;]

=====

Reviewer Comments:

(from Sequence 1)

gtacgaattc cgtacacggt tcattgcgctc gcaactaaac ctctctttac tag gg 665
Gly
125

act ttc tgg tac cat agc cat ctc tcc acg caa tac tgc gat ggt ttg 713
Thr Phe Trp Tyr His Ser His Leu Ser Thr Gln Tyr Cys Asp Gly Leu
130 135 140

The "125" above needs to be directly under "Gly" above it.

Validated By CRFValidator v 1.0.3

Application No: 10586348

Version No: 1.0

Input Set:

Output Set:

Started: 2008-02-06 11:19:29.107

Finished: 2008-02-06 11:19:32.430

Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 323 ms

Total Warnings: 13

Total Errors: 5

No. of SeqIDs Defined: 18

Actual SeqID Count: 18

Error code	Error Description
E 320	Wrong Nucleic Acid Designator, gg in SEQID (1)
E 320	Wrong Nucleic Acid Designator, ac in SEQID (1)
E 320	Wrong Nucleic Acid Designator, cc in SEQID (1)
E 320	Wrong Nucleic Acid Designator, cg in SEQID (1)
W 213	Artificial or Unknown found in <213> in SEQ ID (4)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
W 213	Artificial or Unknown found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
W 213	Artificial or Unknown found in <213> in SEQ ID (11)
W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)
W 402	Undefined organism found in <213> in SEQ ID (17)
E 320	Wrong Nucleic Acid Designator, gg in SEQID (17)
W 402	Undefined organism found in <213> in SEQ ID (18)

SEQUENCE LISTING

<110> ALVES, ALEXANDRA M.C.R.
 RECORD, ERIC
 LOMASCOLO, ANNE
 SIGOILLOT, JEAN-CLAUDE
 ASTHER, MARCEL
 WOSTEN, HAN A.B.

<120> METHOD FOR OVERPRODUCING A SPECIFIC RECOMBINANT PROTEIN
 WITH P. CINNABARINUS MONOKARYOTIC STRAINS

<130> 0508-1167

<140> 10586348

<141> 2008-02-06

<150> PCT/FR05/000093

<151> 2005-01-14

<150> FR 04/00366

<151> 2004-01-15

<160> 18

<170> PatentIn Ver. 3.3

<210> 1

<211> 3330

<212> DNA

<213> Pycnoporus cinnabarinus

<220>

<221> CDS

<222> (128) .. (310)

<220>

<221> CDS

<222> (368) .. (436)

<220>

<221> CDS

<222> (490) .. (610)

<220>

<221> CDS

<222> (664) .. (777)

<220>

<221> CDS

<222> (833) .. (896)

<220>

<221> CDS

<222> (960) .. (1055)

<220>
 <221> CDS
 <222> (1114)..(1270)

<220>
 <221> CDS
 <222> (1334)..(1531)

<220>
 <221> CDS
 <222> (1592)..(1648)

<220>
 <221> CDS
 <222> (1705)..(1911)

<220>
 <221> CDS
 <222> (1968)..(2255)

<400> 1
 ctgcagacat ctggagcgcc tgtctttccc ctagtataaa tgatgtctgt ccgcaggtcc 60
 ttgaagaccg ctcgagtcctt acttgagttt taggtaggac ctgtccacca aaccctctt 120
 tctgatac atg tcg agg ttc cag tcc ctc ttc ttc ttc gtc ctc gtc tcc 169
 Met Ser Arg Phe Gln Ser Leu Phe Phe Phe Val Leu Val Ser
 1 5 10

ctc acc gct gtg gcc aac gca gcc ata ggg cct gtg gcg gac ctg acc 217
 Leu Thr Ala Val Ala Asn Ala Ala Ile Gly Pro Val Ala Asp Leu Thr
 15 20 25 30

ctt acc aat gcc cag gtc agc ccc gat ggc ttc gct cgc gag gcc gtc 265
 Leu Thr Asn Ala Gln Val Ser Pro Asp Gly Phe Ala Arg Glu Ala Val
 35 40 45

gtg gtg aac ggt atc acc cct gcc cct ctc atc aca ggc aat aag 310
 Val Val Asn Gly Ile Thr Pro Ala Pro Leu Ile Thr Gly Asn Lys
 50 55 60

gtatgtatat gctgctcgtc cctcagagct acatacatct gatccacaat cgtttag 367

ggc gat cga ttc cag ctc aat gtc atc gac cag ttg aca aat cat acc 415
 Gly Asp Arg Phe Gln Leu Asn Val Ile Asp Gln Leu Thr Asn His Thr
 65 70 75

atg ttg aaa aca tct agt att gtaagggttc agtttttccc gactaccatg 466
 Met Leu Lys Thr Ser Ser Ile
 80

ttattgacca tcaccactcg tag cat tgg cac ggc ttc ttc cag caa ggc acg 519
 His Trp His Gly Phe Phe Gln Gln Gly Thr
 85 90

aac tgg gcc gat ggt ccc gcg ttc gtg aac cag tgt ccc atc gct tcg 567
 Asn Trp Ala Asp Gly Pro Ala Phe Val Asn Gln Cys Pro Ile Ala Ser
 95 100 105 110

ggc cac tcg ttc ttg tat gac ttt caa gtt ccc gac caa gca g	610
Gly His Ser Phe Leu Tyr Asp Phe Gln Val Pro Asp Gln Ala	
115 120	
gtacgaattc cgtaacggtt tcattgcgtc gcaactaaac ctctctttac tag gg	665
Gly	
125	
act ttc tgg tac cat agc cat ctc tcc acg caa tac tgc gat ggt ttg	713
Thr Phe Trp Tyr His Ser His Leu Ser Thr Gln Tyr Cys Asp Gly Leu	
130 135 140	
agg ggg cct ttc gtc gtc tac gac ccc aac gat cct cac gct agc ctg	761
Arg Gly Pro Phe Val Val Tyr Asp Pro Asn Asp Pro His Ala Ser Leu	
145 150 155	
tat gac att gat aac g gtgagcagat catggtatcg caatattgcg tccacttatg	817
Tyr Asp Ile Asp Asn	
160	
cttctctggca tccag ac gac act gtc att acg ctg gct gat tgg tat cac	867
Asp Asp Thr Val Ile Thr Leu Ala Asp Trp Tyr His	
165 170	
gtt gct gcc aag ctc gga cct cgc ttc cc gtacgtgtca aatgtctacg	916
Val Ala Ala Lys Leu Gly Pro Arg Phe Pro	
175 180	
agagatctca catatacgac tagactcact tcgctgatta cag a ttt ggc tcc gat	972
Phe Gly Ser Asp	
185	
tca acc ctt atc aat gga ctt ggt cga acc act ggc ata gca ccg tcc	1020
Ser Thr Leu Ile Asn Gly Leu Gly Arg Thr Thr Gly Ile Ala Pro Ser	
190 195 200	
gac ttg gca gtt atc aag gtc acg cag ggc aag cg gtaagtatgg	1065
Asp Leu Ala Val Ile Lys Val Thr Gln Gly Lys Arg	
205 210 215	
atggtcatca ctgcacattg gctctgatac atggccttgt ttccacag c tac cgc	1120
Tyr Arg	
ttc cgc ttg gtg tcg ctt tct tgc gat ccg aac cat aca ttc agc att	1168
Phe Arg Leu Val Ser Leu Ser Cys Asp Pro Asn His Thr Phe Ser Ile	
220 225 230	
gat aat cac aca atg act ata att gag gcg gac tcg atc aac act caa	1216
Asp Asn His Thr Met Thr Ile Ile Glu Ala Asp Ser Ile Asn Thr Gln	
235 240 245 250	
ccc cta gag gtt gat tca atc cag att ttt gcc gcg cag cgc tac tcc	1264
Pro Leu Glu Val Asp Ser Ile Gln Ile Phe Ala Ala Gln Arg Tyr Ser	
255 260 265	

ttc gtg gtaggtcgta ggctcctgtc atcaagtttg cagacattct tagatacacc Phe Val	1320
tttttcaatg cag ctg gat gct agc cag ccg gtg gat aac tac tgg atc Leu Asp Ala Ser Gln Pro Val Asp Asn Tyr Trp Ile 270 275 280	1369
cgc gca aac cct gcc ttc gga aac aca ggt ttt gct ggt gga atc aat Arg Ala Asn Pro Ala Phe Gly Asn Thr Gly Phe Ala Gly Gly Ile Asn 285 290 295	1417
tct gcc atc ctg cgt tat gat ggc gca ccc gag atc gag cct acg tct Ser Ala Ile Leu Arg Tyr Asp Gly Ala Pro Glu Ile Glu Pro Thr Ser 300 305 310	1465
gtc cag act act cct acg aag cct ctg aac gag gtc gac ttg cat cct Val Gln Thr Thr Pro Thr Lys Pro Leu Asn Glu Val Asp Leu His Pro 315 320 325	1513
ctc tcg cct atg cct gtg gtacgtgtct caaagaacct cgatcactaa Leu Ser Pro Met Pro Val 330	1561
gtgcatgtca actcatatgg tgcattgacag cct ggc agc ccc gag ccc gga ggt Pro Gly Ser Pro Glu Pro Gly Gly 335 340	1615
gtc gac aag cct ctg aac ttg gtc ttc aac ttc gtgagtactg gcgcgcttcc Val Asp Lys Pro Leu Asn Leu Val Phe Asn Phe 345 350	1668
gtagcacacg ttctgaacaaa gcctgatacc atgcag aac ggc acc aac ttc ttc Asn Gly Thr Asn Phe Phe 355	1722
atc aac gac cac acc ttt gtc ccg ccg tct gtc cca gtc ttg cta caa Ile Asn Asp His Thr Phe Val Pro Pro Ser Val Pro Val Leu Leu Gln 360 365 370 375	1770
atc ctc agt ggg gcg cag gcg gct cag gac ctg gtc ccg gag ggc agc Ile Leu Ser Gly Ala Gln Ala Ala Gln Asp Leu Val Pro Glu Gly Ser 380 385 390	1818
gtg ttc gtt ctt ccc agc aac tcg tcc att gag ata tcc ttc cct gcc Val Phe Val Leu Pro Ser Asn Ser Ser Ile Glu Ile Ser Phe Pro Ala 395 400 405	1866
act gcc aat gcc cct gga ttc ccc cat ccg ttc cac ttg cac ggt Thr Ala Asn Ala Pro Gly Phe Pro His Pro Phe His Leu His Gly 410 415 420	1911
gtacgtctgc cttccctctg tctaaaggcg gagtcgatat ctgactccca tcacag cac His	1970
gcc ttc gct gtc gtc ccg agc gcc ggg agc agc gtc tac aac tac gac	2018

Ala Phe Ala Val Val Arg Ser Ala Gly Ser Ser Val Tyr Asn Tyr Asp
 425 430 435

aac ccg atc ttc cgc gac gtc gtc agc acc ggc cag ccc ggc gac aac 2066
 Asn Pro Ile Phe Arg Asp Val Val Ser Thr Gly Gln Pro Gly Asp Asn
 440 445 450 455

gtc acg att cgc ttc gag acc aat aac cca ggc ccg tgg ttc ctc cac 2114
 Val Thr Ile Arg Phe Glu Thr Asn Asn Pro Gly Pro Trp Phe Leu His
 460 465 470

tgc cac att gac ttc cac ctc gac gca ggc ttt gct gta gtc atg gcc 2162
 Cys His Ile Asp Phe His Leu Asp Ala Gly Phe Ala Val Val Met Ala
 475 480 485

gag gac act ccg gac acc aag gcc gcg aac cct gtt cct cag gcg tgg 2210
 Glu Asp Thr Pro Asp Thr Lys Ala Ala Asn Pro Val Pro Gln Ala Trp
 490 495 500

tgc gac ttg tgc ccc atc tat gat gca ctt gac ccc agc gac ctc 2255
 Ser Asp Leu Cys Pro Ile Tyr Asp Ala Leu Asp Pro Ser Asp Leu
 505 510 515

tgagcgggat tggtactgtg acctggtgtg gggggaacat gtcgagggtt ttcacgac 2315
 agggactttc aaggttgga taatatacct cagcgcttg atgactcgga cagcgtgtgg 2375
 gcgtgggtgt aactctgctt gatgttgaaa aaaggatttt atgtagaaca atttatgac 2435
 aatcagcaat caataggatt gtgtcggttt cgacgaaatg tcttgtctcc ctgacattac 2495
 ttttgtgcga gaaatgggtc catgatacac atcattgagc tctcaatacc aagaaggatt 2555
 acccatgtca ataccaaga tcatgtcttc gctgtcgcga atggtctcat gttgcgttga 2615
 gcagatcgca gtacgttgaa aagcgattag tattacatgc aacatgcaac atttggaagg 2675
 gggcatgcag aggttcagct cgcgtcagtc ggccaagtag cgacctttgc cgcactgcct 2735
 gttaacctga acgtatgctt cagaactccg tcggtatcga gagcgatcgt gtacgttccg 2795
 ggatagatcc attgatcccc gctctggtcg gcgcgtgcga tggccccgag cgtcaccggc 2855
 agcttcgcga tcgcgttttt cctaggggag aggcgtgtga cccgcgtgta cgagacgagc 2915
 tgcttggtcg ggtggggcga aggccgaag gagccactca cgaagagcaa tgcgacgtaa 2975
 tccgaggtag ccttgcccg gttagtcaca cgcacggaga acgtgtcgag cggcgcgagg 3035
 tcgaggaagg cggcgtctt ctgaccgcgc tgtacgaggt cggaaatcga atacgtcgat 3095
 ggcggtctc caaagtcctt gacgttggtc gcacgcgcgc ccgcgcctgg agctgcccaa 3155
 gagaaatcga aggtggtgaa gtgcagtcca aagccaaatt cgtagaccgg cgtgccggtg 3215
 taccacttgt atgtacgccc cgggttcgac gcgcttgggc gaagggtcat gtcagtcac 3275
 ggaacctgat cagcgtagat ggctgggtat tgggtgatgg gcaggcgtcc tgcag 3330

<210> 2

<211> 518

<212> PRT

<213> Pycnoporos cinnabarinus

<400> 2

Met Ser Arg Phe Gln Ser Leu Phe Phe Phe Val Leu Val Ser Leu Thr
 1 5 10 15

Ala Val Ala Asn Ala Ala Ile Gly Pro Val Ala Asp Leu Thr Leu Thr
 20 25 30

Asn Ala Gln Val Ser Pro Asp Gly Phe Ala Arg Glu Ala Val Val Val
 35 40 45

Asn Gly Ile Thr Pro Ala Pro Leu Ile Thr Gly Asn Lys Gly Asp Arg
50 55 60

Phe Gln Leu Asn Val Ile Asp Gln Leu Thr Asn His Thr Met Leu Lys
65 70 75 80

Thr Ser Ser Ile His Trp His Gly Phe Phe Gln Gln Gly Thr Asn Trp
85 90 95

Ala Asp Gly Pro Ala Phe Val Asn Gln Cys Pro Ile Ala Ser Gly His
100 105 110

Ser Phe Leu Tyr Asp Phe Gln Val Pro Asp Gln Ala Gly Thr Phe Trp
115 120 125

Tyr His Ser His Leu Ser Thr Gln Tyr Cys Asp Gly Leu Arg Gly Pro
130 135 140

Phe Val Val Tyr Asp Pro Asn Asp Pro His Ala Ser Leu Tyr Asp Ile
145 150 155 160

Asp Asn Asp Asp Thr Val Ile Thr Leu Ala Asp Trp Tyr His Val Ala
165 170 175

Ala Lys Leu Gly Pro Arg Phe Pro Phe Gly Ser Asp Ser Thr Leu Ile
180 185 190

Asn Gly Leu Gly Arg Thr Thr Gly Ile Ala Pro Ser Asp Leu Ala Val
195 200 205

Ile Lys Val Thr Gln Gly Lys Arg Tyr Arg Phe Arg Leu Val Ser Leu
210 215 220

Ser Cys Asp Pro Asn His Thr Phe Ser Ile Asp Asn His Thr Met Thr
225 230 235 240

Ile Ile Glu Ala Asp Ser Ile Asn Thr Gln Pro Leu Glu Val Asp Ser
245 250 255

Ile Gln Ile Phe Ala Ala Gln Arg Tyr Ser Phe Val Leu Asp Ala Ser
260 265 270

Gln Pro Val Asp Asn Tyr Trp Ile Arg Ala Asn Pro Ala Phe Gly Asn
275 280 285

Thr Gly Phe Ala Gly Gly Ile Asn Ser Ala Ile Leu Arg Tyr Asp Gly
290 295 300

Ala Pro Glu Ile Glu Pro Thr Ser Val Gln Thr Thr Pro Thr Lys Pro
305 310 315 320

Leu Asn Glu Val Asp Leu His Pro Leu Ser Pro Met Pro Val Pro Gly
325 330 335

Ser Pro Glu Pro Gly Gly Val Asp Lys Pro Leu Asn Leu Val Phe Asn
340 345 350

Phe Asn Gly Thr Asn Phe Phe Ile Asn Asp His Thr Phe Val Pro Pro
355 360 365

Ser Val Pro Val Leu Leu Gln Ile Leu Ser Gly Ala Gln Ala Ala Gln
370 375 380

Asp Leu Val Pro Glu Gly Ser Val Phe Val Leu Pro Ser Asn Ser Ser
385 390 395 400

Ile Glu Ile Ser Phe Pro Ala Thr Ala Asn Ala Pro Gly Phe Pro His
405 410 415

Pro Phe His Leu His Gly His Ala Phe Ala Val Val Arg Ser Ala Gly
420 425 430

Ser Ser Val Tyr Asn Tyr Asp Asn Pro Ile Phe Arg Asp Val Val Ser
435 440 445

Thr Gly Gln Pro Gly Asp Asn Val Thr Ile Arg Phe Glu Thr Asn Asn
450 455 460

Pro Gly Pro Trp Phe Leu His Cys His Ile Asp Phe His Leu Asp Ala
465 470 475 480

Gly Phe Ala Val Val Met Ala Glu Asp Thr Pro Asp Thr Lys Ala Ala
485 490 495

Asn Pro Val Pro Gln Ala Trp Ser Asp Leu Cys Pro Ile Tyr Asp Ala
500 505 510

Leu Asp Pro Ser Asp Leu
515

<210> 3

<211> 2527

<212> DNA

<213> *Pycnopus cinnabarinus*

<400> 3

agatctccga accagaaatg cgattgcgtt caggcccaat taagaataaa gctgcgtcag 60
ggcagcgacg tatcttgatc catcattgac tcaccggcat cggcgtcaac accaaagcaa 120
gctcgtccca cccataggcg tgcaccggcc ggcggtgcgc attgaggtac atgagcgggg 180
cgaaagtccg ccattggtag ccctgtcgtg gacgcgcggc gatgaaacgt tccccaccat 240
tggaagaaa cgtctgcggc ccatcatccc ttaccggat gacaaggcgg cgtcgcgcct 300
ttgccgcaga ggccggcggg cgacatgcac agcgaaggtc cgttgcggat gggaagcagg 360
caatcagtgg gtgtcctacg ccgccacgat ggtcggggag cgtaggcgc ccataaag 420
gcggcaagca tcatgatgct ctccgatcg ggaagcctgg tgcgatgctg gagagactct 480
ctccgagaga ccagtgtgcg caacgttcct ggctggaag actttaagt gaggtagaa 540
ggcgagcagc aggcagatca tcggattgca ggaaccatcg gcacctcag cctgggaagg 600
atggctcttg gtagacattc gcggaagggt tcctagatgt gaggcggtt cttggatgat 660
catgtcgtaa ctttttctga cctcgtcgtt ggtacgcatt gcaggattga gcattacggt 720
atgcctccca ttcataaacg ataaccctt ccttcagggt ggatcatctc atagagcggc 780
acgctctcaa ggccataggt attcacacct ccttcgcaac atccctattc acggtgtctg 840
taaggaacga cttgtcatgg gatcacatga agtcagcat actgttcgcc ggtctgcag 900

tacagacgct agtacgggaa gtcgacatcc aagcggttcag tcaccacatg gcaaaaaagc 960
tgcaccatac tctttatggg gagttgttcg tgagtggat acagtcattc atgaggggaat 1020
gcccaccgga tagggtgtgg cggccgcaat attcatcgcc tggcaatagt cgatgtgcgt 1080
ccttgttcaa tgaatatcat gggtcacatg tggagacggt